

A cellular wireless internet access system which operates in the 2.5 to 2.68 GHz band and which must comply with complex government regulations on power levels, subscriber equipment and interference levels yet which provides high data rates to users and cell sizes of 1 ½ miles radius or more from base stations with subscriber equipment and antennas mounted indoors. Such base stations are mounted low and use spread-spectrum transmission to comply with interference rules with respect to adjacent license areas. An unidirectional tear-drop coverage pattern is used at multiple cells to further reduce interference when required. Time division duplex is used to allow the system to operate on any single channel of varying bandwidth within the 2.5 to 2.68 GHz band. Backhaul transmission from base stations to the Internet is provided using base station radio equipment, operating either on a different frequency in the band or on the same frequency using a time-division peer-to-peer technique. Different effective data rates are provided by a prioritization tiering technique.